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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,386

06/24/2008

Youichi Sakakibara

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29494 7590 07/07/2010  
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EXAMINER

NGUYEN, TRI V

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,386	<b>Applicant(s)</b> SAKAKIBARA ET AL.	
	<b>Examiner</b> TRI V. NGUYEN	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/16/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 8 and 10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant's election of Group I, claims 1-7 and 9, in the reply filed on 4/15/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Drawings***

2. The Drawings filed 9/27/2006 are approved by the examiner.

### ***Information Disclosure Statement***

3. The information disclosure statement(s) (IDS) submitted on 11/16/2006 is/are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement(s) is/are being considered by the examiner and an initialed copy is attached.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined

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application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 and 9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 7682590. Although the conflicting claims are not identical, they are not patentably distinct from each other the phrase "saturable absorber" in the preamble is intended use and therefore the composition only needs to be capable of performing the intended use of an absorber. Case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCPA 1963). It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended

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use, i.e. for use as a saturable absorber, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art invention and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonsignore et al. (US 2004/0069454).

Claims 1, 4: The Bonsignore et al. reference teaches a liquid composition that includes nanometer size particle such as carbon nanotubes, a non-ionic polyoxyethylene surfactant, an organic solvent, a polyimide component, and various additive such as polyamide and polyvinylpyrrolidone (PVP) (abstract, § 14, 20, 32, 37, 60, 62, 64). The Bonsignore et al. reference discloses the claimed invention with each of the component but does not specifically disclose the composition with the claimed element in one single example.

Nevertheless, given that the Bonsignore et al. reference discloses each of the components; it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize any of the taught components since the Bonsignore et al. reference teaches each one.

It is noted that the phrase "saturable absorber" in the preamble is intended use and therefore the composition taught by the Bonsignore et al. reference only need to be capable of

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performing the intended use of an absorber. Case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCPA 1963). It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. for use as a saturable absorber, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art invention and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

Claims 5-6: The Bonsignore et al. reference discloses the claimed invention with the components loading in the range of about 1 to about 99% (§ 38, 74, 77) but does not specifically disclose the claimed loading values.

Given that the Bonsignore et al. reference discloses a wt % range that overlaps with the presently claimed range, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize any of the taught percentages, including those presently claimed, to obtain a suitable composition.

It is also noted that according to MPEP 2131.03 and MPEP 2144.05, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a

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showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir.1990). Thus it would have been well within the purview of a skilled artisan to tune or tailor the loading to arrive at the desired structural and electrical properties of the end-product.

Claims 7 and 9: It is noted that claims 7 and 9 are product-by-process claim, requiring that the composition is mixed and filtered. Nevertheless, "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695,698,227 USPQ 964, 966 (Fed. Cir. 1985).

Thus, any differences can be shown for the product of the product-by-process claims, as opposed to the product taught by Bonsignore et al. such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product and are recognized as being well within the purview of the skilled artisan to yield predictable results. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." *In re Brown*, 459 F.2d 531,535, 173 USPQ 685,688 (CCPA 1972).

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7. Claims 1-3, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smalley et al (US 2002/0068170).

Claims 1, 3: The Smalley et al reference teaches a dispersion composition that includes carbon nanotube component, a surfactant, a N-methyl pyrrolidone (NMP), PVP, a polyimide component and an organic component (§abstract, 20, 28, 42, 43, 50, 71). The Smalley et al. reference discloses the claimed invention with each of the component but does not specifically disclose the composition with the claimed element in one single example.

Nevertheless, given that the Smalley et al. reference discloses each of the components; it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize any of the taught components since the Smalley et al. reference teaches each one.

It is noted that the phrase "saturable absorber" in the preamble is intended use and therefore the composition taught by the Smalley et al. reference only need to be capable of performing the intended use of an absorber. Case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCPA 1963). It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. for use as a saturable absorber, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art invention and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.



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Claim 2: the Smalley et al reference teaches the single-walled nanotube feature (abstract).

Claim 6: The Smalley et al. reference discloses an example with 1% solution of PVP.

Claims 7 and 9: It is noted that claims 7 and 9 are product-by-process claim, requiring that the composition is mixed and filtered. Nevertheless, "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Thus, any differences can be shown for the product of the product-by-process claims, as opposed to the product taught by Smalley et al. such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product and are recognized as being well within the purview of the skilled artisan to yield predictable results. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In *re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

8. Claims 1-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh (WO2004/039893A1 - the English equivalent US2006/0052509 is referenced from hereon).

Claims 1, 3, 4: The Saitoh reference teaches a dispersion composition that includes carbon nanotube component, a polyoxyethylene surfactant, dimethylacetamide, N-methyl pyrrolidone (NMP), PVP, a polyimide component and an organic component (§abstract, 16, 72, 80, 909, 91, 113). The Saitoh reference discloses the claimed invention with each of the

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component but does not specifically disclose the composition with the claimed element in one single example.

Nevertheless, given that the Saitoh reference discloses each of the components; it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize any of the taught components since the Saitoh reference teaches each one.

It is noted that the phrase "saturable absorber" in the preamble is intended use and therefore the composition taught by the Saitoh reference only need to be capable of performing the intended use of an absorber. Case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCPA 1963). It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. for use as a saturable absorber, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art invention and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

Claim 2: the Saitoh reference teaches the single-walled nanotube feature (§74).

Claims 5-6: The Saitoh reference discloses the claimed invention with the components loading in various ratios depending on the desired product (§ 101-107) but does not specifically disclose the claimed loading values.

Given that the Saitoh reference discloses a wt % range that overlaps with the presently claimed range, it would have been obvious to one of ordinary skill in the art at the time of the

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invention to utilize any of the taught percentages, including those presently claimed, to obtain a suitable composition.

It is also noted that according to MPEP 2131.03 and MPEP 2144.05, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir.1990). Thus it would have been well within the purview of a skilled artisan to tune or tailor the loading to arrive at the desired structural and electrical properties of the end-product.

Claims 7 and 9: It is noted that claims 7 and 9 are product-by-process claim, requiring that the composition is mixed and filtered. Nevertheless, "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695,698,227 USPQ 964, 966 (Fed. Cir. 1985).

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Thus, any differences can be shown for the product of the product-by-process claims, as opposed to the product taught by Saitoh such differences would have been obvious to one of ordinary skill in the art as a routine modification of the product and are recognized as being well within the purview of the skilled artisan to yield predictable results. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In re Brown, 459 F.2d 531,535, 173 USPQ 685,688 (CCPA 1972).

9. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonsignore et al. in view of Kuper et al (US 2008/0076837).

The Bonsignore et al. reference discloses the claimed invention but does not explicitly disclose the single-walled nanotubes and the specific amide component features; the Bonsignore et al. reference teaches the use of additives commonly employed in the art in its composition and optimization of the components to achieve the desired results (§46, 57 and 87).

In an analogous art, the Kuper et al. reference teaches a single-walled nanotube dispersion that includes 0.001-30 % wt of a polyoxyethylene non-ionic surfactant and an amide component such as NMP (§24, 30, 54, 60 and 61) and further teaches that these features are advantageously used to gain the benefit of tuning and modulating the structural, dispersion and rheology of the composition.

Thus, given that the Bonsignore et al. reference is open to further additives commonly used in the art and that the surfactant and the SWNT feature are well known in the art as shown by the Kuper et al. reference, it would have been obvious to one of ordinary skill in the art at the

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time of the invention to utilize the taught features in the composition taught by the Bonsignore et al. reference.

10. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smalley et al. in view of Kuper et al (US 2008/0076837).

The Smalley et al. reference discloses the claimed invention but does not explicitly disclose the specific surfactant and the specific amide component features; the Smalley et al. reference teaches the use of additives commonly employed in the art in its composition and optimization of the components to achieve the desired results (§ 80).

In an analogous art, the Kuper et al. reference teaches a single-walled nanotube dispersion that includes 0.001-30 % wt of a polyoxyethylene non-ionic surfactant and an amide component such as NMP (§24, 30, 54, 60 and 61) and further teaches that these features are advantageously used to gain the benefit of tuning and modulating the structural, dispersion and rheology of the composition.

Thus, given that the Smalley et al. reference is open to further additives commonly used in the art and that the surfactant and the SWNT feature are well known in the art as shown by the Kuper et al. reference, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the taught features in the composition taught by the Smalley et al. reference.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRI V. NGUYEN whose telephone number is (571)272-6965. The examiner can normally be reached on M-F 8:00 AM to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. V. N./  
Examiner, Art Unit 1796  
July 7, 2010

/Mark Kopec/  
Primary Examiner, Art Unit 1796